

Internal Quarterly Report

Date of Report: 3rd Quarterly Report – June 30, 2022

Contract Number: #693JK3211RA0001

Prepared for: PHMSA DOT

Project Title: Assessment of Nondestructive Examination (NDE) and Condition Monitoring Technologies for Defect Detection in Non-Metallic Pipe

Prepared by: EWI

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For quarterly period ending: June 30, 2022

1: Items Completed During this Quarterly Period:

Task 6 Erosion Test procedures and chamber assembly were completed during Quarter three. The third quarterly update was also completed during Quarter three.

Item #	Task #	Activity/Deliverable	Title
6	6	Task 6 Test Procedures and Chamber Assembly	Prepare & Provide a Written Test Procedure for Erosion Tests
8	10	Submit 3 rd Quarterly Report	3 rd Quarterly Status Report & Quarterly collaboration meeting

2: Items Not Completed During this Quarterly Period:

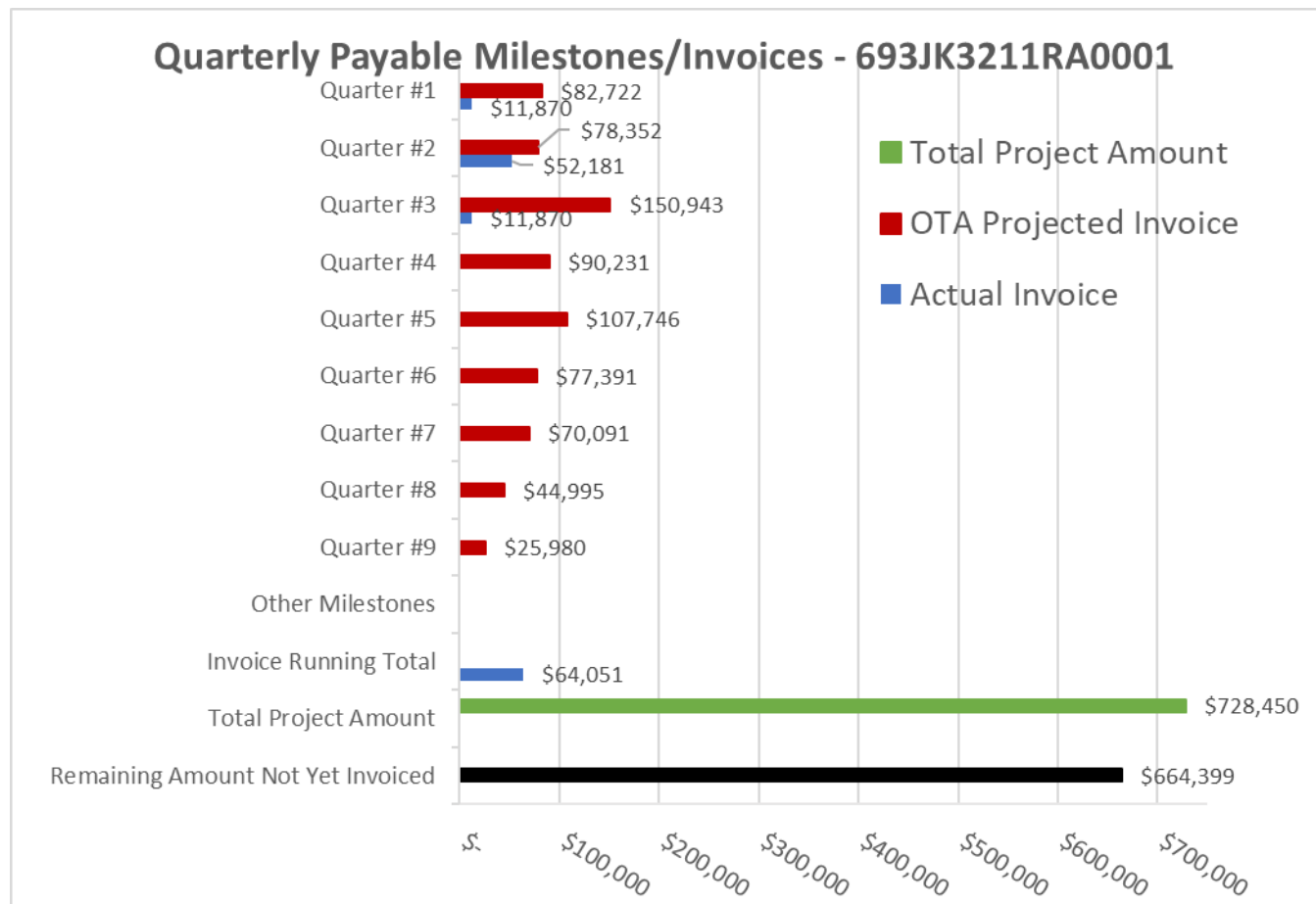
The NMP Sample matrix had been internally completed, however we received additional pipes June 20th and June 24th, those pipe details will be added to the matrix before it is submitted. EWI has drafted the NDE procedures for all the internal methodologies and has requested quotes from vendors for NDE methodologies we will be hiring out. Those Pos need to be finalized before we receive their procedure paperwork. These will be evaluated and added to our procedures before submission.

Item #	Task #	Activity/Deliverable	Title
2*	2	NMP sample matrix detailing type of pipe and defects, anomalies or damage per sample	Prepare detailed matrix of NMP samples
4*	3	Develop NDE procedures for inspection of NMP samples using non-contact and 3 coupled UT methods, microwave inspection method and 2 thermography methods	Completion of written NDE procedures

3: Project Financial Tracking During this Quarterly Period:

The actual spend is behind planned.

- Task 2 – EWI has requested input from our project partners, this information was requested at November's kickoff, 12/15/21 follow up email of action items, 1/31/2022 Monthly Update email, 3/23/22 Quarterly Update Meeting, 3/24/2022 follow up email, and up through 5/23/2022. As of 6/24/2022 EWI has all the pipes from current project partners and is now updating the Matrix to include these later arrivals.
- Task 3 – EWI has drafted NDE procedures. Our requests for quote for Microwave Imaging and Air Coupled UT were sent in April, we have addressed questions several times and need to finalize our plan forward. Once purchase orders are provided to the vendors, EWI will finalize procedures including both internal NDE testing procedures.



4: Project Technical Status –

Item	Task	Activity/Deliverable	Title
1	1	Task report summarizing findings of literature review	Literature review of recent research on NDE of polymers & composites - issue task report
2*	2	NMP sample matrix detailing type of pipe and defects, anomalies, or damage per sample	Prepare detailed matrix of NMP samples
3	10	Submit 1st quarterly report	1st Quarterly Status Report & Quarterly collaboration meeting
4*	3	Develop NDE procedures for inspection of NMP samples using non-contact and 3 coupled UT methods, microwave inspection method and 2 thermography methods	Completion of written NDE procedures
6	6	Task 6 Test Procedures and Chamber Assembly	Prepare & Provide a Written Test Procedure for Erosion Tests
3	10	Submit 2 nd quarterly report	2 nd Quarterly Status Report & Quarterly collaboration meeting
8	10	Submit 3 rd quarterly report	3 rd Quarterly Status Report & Quarterly collaboration meeting
7	4	NDE Review Progress to date (samples, procedures, early inspection data)	Task 4 NDE Project Review

Task 1 – Literature Review was completed by EWI and NDE4zero’s Mark Lozev. The report was supplied to the project team on 3/31/2022

Task 2 – NMP Sample Matrix. EWI received additional pipes in late June and is further updating the Matrix.

Task 3 – The internal NDE procedures have been developed. NDE procedures for external technologies is awaiting procurement activities.

Task 4 – CT scanning was completed in mid-June on pipe samples that had been received by the project. New pipe samples were received late June and will be scanned in July. After scans are analyzed EWI NDE testing will begin on selected pipe samples.

Task 6 – The cost share portion of this task has been completed: test cells have been built and a test method developed (5/31/2022). The task began in December 2021 and has been completed in June 2022. The federally funded portion of this work will begin once pipe samples are finished machining and scanning, anticipated July 2022

Task 10 – The 1st quarterly status report was provided on 1/4/22. The 2nd quarterly status report was provided on 3/31/2022. The 3rd quarterly status report will be provided on 6/30/2022. The next collaborative meeting is anticipated to occur in September or October, please see upcoming Doodle calendar poll.

While not tied to a specific milestone during the third quarter, the following activities were undertaken: (1) EWI followed up with TAP members, providing NDA documents to be completed. The current Tap includes:

- Rick Hill – Microalloying International
- Khalid Farrag – GTI
- Jim Mason – Mason Materials Development, LLC
- Dr. Randy Knapp – Plastic Pipe Institute

(2) EWI held discussions with BP and Conoco Phillips about joining either as project partners or TAP members.

5: Project Schedule –

The delay of both pipe matrix details, and physical arrival of the pipes has hindered completion of Task 2 (identification of pipe samples and associated damage features). The questions from our Microwave Imaging and Air Coupled UT vendors have delayed purchase orders and completing the NDE procedural documents. The adjustments to our schedule are highlighted in yellow below.

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